OPERATOR'S MANUAL *for* SIMPSON

MODEL 305

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SIMPSON ELECTRIC CO.
5216-18 KINZIE STREET
CHICAGO 44, ILL.

INSTRUCTIONS
MODEL 305

GENERAL: The toggle switches marked C, 1, 2, 3, 4, 5, 6, 7, and 8 are connected to the correspondingly numbered tube element in accordance with the standard RMA numbering system. Toggle switch 9 is a meter reversing switch.

The position of any of the rotary or toggle switches for the various tests on a tube are indicated on the chart. Any of the toggle switches which are not indicated on the chart are to be left in the normal position. Normal position for switches C, 1, 2, 3, 4, 5, 6, 7 and 8 is center. Normal position for switch 9 is down.

Multipurpose tubes such as the 1B5 or 1E7 require more than one test and the switches should be reset for each of the tests as indicated on the chart.

OPERATING PROCEDURE

1. Set all of the group of ten toggle switches, located just below the meter, to the normal position.

2. Rotate the switches marked FILAMENT SELECTOR, FILAMENT RETURN, and TUBE SELECTOR to the position shown on the chart.

3. Throw any toggle switches to the downward position if so called for on the chart in column TOG DOWN.

4. Insert the tube in the proper socket.

5. Test the line voltage by throwing the LINE TEST - TUBE TEST switch to the LINE TEST position. Adjust the line voltage by rotating the knob marked LINE ADJUSTMENT until the meter pointer is at the center mark on the dial marked LINE. Return the LINE TEST - TUBE TEST switch to the TUBE-TEST position.

6. SHORT TEST - CATHODE-HEATER LEAKAGE: If no switch settings are indicated in the column CATHODE-HEATER LEAKAGE on the chart, the tube has no cathode and no test is necessary.

   To test cathode-heater leakage, rotate the CIRCUIT SELECTOR switch to the H position. The neon tube will glow until the toggle switch called for in the CATHODE-HEATER LEAKAGE column is thrown to the upward position. If the neon does not glow, the heater is open. Throw the toggle switch called for on the chart (which is a heater terminal) to the upward position. The neon tube will be dark unless there is a leakage current flowing

between the cathode and heater. The tube should be tapped gently during the test. The neon SENSITIVITY switch should ordinarily be in the LOW position to prevent indication of normal leakage currents, especially in high filament voltage tubes. However, if, for some reason, it is desired to detect very slight leakage currents between the cathode and heater, the SENSITIVITY switch may be placed in the HIGH position.

After making the CATHODE-HEATER leakage test, return toggle switch, shown in CATHODE-HEATER column, to the center or normal position.

7. SHORT TEST - LEAKAGES BETWEEN ELEMENTS OTHER THAN CATHODE AND HEATER: To test for leakages between the remaining elements of cathode type tubes and to test leakage between elements of filament type tubes, rotate the CIRCUIT SELECTOR switch to the S position. Throw one of the toggle switches, shown on the chart under column TOGGLES UP (separately), to the upward position and note if the neon glows or flickers, indicating a short or leakage. Then return it to the center or normal position. Repeat this same procedure for each toggle switch indicated on the chart in this column. The tube should be tapped gently during this test and the neon SENSITIVITY switch should be set in the HIGH position.

8. QUALITY TEST: After testing the tube for leakages and shorts, rotate the CIRCUIT SELECTOR switch to position 1, 2, 3, or 4 as indicated on the chart. Throw all of the toggle switches called for on the chart to the upward position. Read the condition of the tube on the GOOD-DOUBTFUL-BAD scale on the meter.

9. OPEN ELEMENTS: In the case of a few tubes, certain elements which are comparatively distant from the cathode may be open without much change in the total reading on the dial, so that the pointer will remain in the GOOD portion of the dial. To detect such elements, after making the QUALITY TEST, return each toggle switch to the center or normal position, one at a time. If any of the elements are open, there will be no change in the pointer deflection as the corresponding toggle switch is returned to the center position.

10. PILOT AND CHRISTMAS TREE LIGHTS: The center of the 7-prong socket is arranged for insertion of pilot lamps and Christmas tree bulbs. To test these lamps, rotate the FILAMENT RETURN switch to 1 and the

FILAMENT SELECTOR switch to the proper position for the lamp under test, as follows:

FIL. SEL.	APPROX. VOLTS	FIL. SEL.	APPROX. VOLTS
1	0.5	12	17.5
2	0.75	13	25
3	1.0	14	35
4	1.5	15	40
5	2.0	16	50
6	2.5	17	60
7	3.0	18	70
8	5.0	19	80
9	6.0	20	90
10	7.5	21	100
11	12.0	22	110

12. BALLAST TUBES: To test ballast tubes, set the CIRCUIT SELECTOR switch to the S position. Throw all of the ten toggle switches to the downward position. Refer to the tube base wiring diagram of the ballast tube and note the numbers of the two pins to which the resistance element is connected, in accordance with the RMA numbering system. Then test each resistance element separately by throwing the two toggle switches corresponding to the numbers of the two pins, one toggle switch to the center and one to the upward position. The neon tube will glow if the resistance element is not burned out. Return the two toggle switches to the downward position, and repeat the same test on any other resistance element in the ballast tube.

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
00A	8	1	39				S	2-3	1	23
01-A	8	1	36				S	2-3	1	23
0A4		1	41				S	5	4	5
0Z4 P.1		1	46				S	3-5	4	3
P.2		1	46						4	5
1	9	1	46		H	4	S	2	1	2
1A3	4	1	0	2	H	7	S	6	3	6
1A4	5	1	31				S	C-2-3	2	C23
1A5	4	2	33				S	3-4-5	2	345
1A6	5	1	30				S	C-2-3-4-5	2	C2345
1A7	4	2	32				S	C-3-4-5-6	2	C3456
1B4-951	5	1	32				S	C-2-3	2	C23
1B5-258 Tri.	5	1	30				S	2-3-4-5	2	25
Dio.1	5	1	0						3	3
Dio.2	5	1	0						3	4
1B7	4	1	36				S	C-3-4-5-6	2	C3456
1B8 Tri.	4	2	35				S	C-3-4-5-6-8	2	C6
Pen.	4	2	35						2	345
Dio.	4	2	0						3	8
1C5	4	2	36				S	3-4-5	2	345
1C6	5	1	32				S	C-2-3-4-5	2	C2345
1C7	5	2	32				S	C-3-4-5-6	2	C3456
1C21		1					S	5	4	5
1D5	5	2	32				S	C-3-4	2	C34
1D7	5	2	29				S	C-3-4-5-6	2	C3456
1D8 Tri.	4	2	32				S	C-3-4-5-6-8	2	C6
Pen.	4	2	36						2	345
Dio.	4	2	0						3	8
1E4	4	2	37				S	3-5	2	35
1E5	5	2	31				S	C-3-4	2	C34
1E7 Pen.1	5	2	35				S	3-4-5-6-8	2	348
Pen.2	5	2	35						2	568
1F4	5	1	33				S	2-3-4	2	234
1F5	5	2	34				S	3-4-5	2	345
1F6 Pen.	5	1	32				S	C-2-3-4-5	2	C23
Dio.1	5	1	0						3	4
Dio.2	5	1	0						3	5
1F7 Pen.	5	2	27				S	C-3-4-5-6	2	C36
Dio.1	5	2	0						3	4
Dio.2	5	2	0						3	5
1G4	4	2	37				S	3-5	2	35
1G5	5	2	36				S	3-4-5	2	345
1G6 Tri.1	4	2	35				S	3-4-5-6	2	34
Tri.2	4	2	35						2	56
1H4	5	2	32				S	3-5	2	35
1H5 Tri.	4	2	31				S	C-3-5	2	C3
Dio.	4	2	0						3	5
1H6 Tri.	5	2	28				S	3-4-5-6	2	36
Dio.1	5	2	0						3	4
Dio.2	5	2	0						3	5
1J5	5	2	32				S	3-4-5	2	345
1J6 Tri.1	5	2	31				S	3-4-5-6	2	34
Tri.2	5	2	31						2	56
1L4	4	1	34	5			S	2-3-6	2	236
1LA4	4	1	35				S	2-3-6	2	236
1LA6	4	1	32				S	2-3-4-5-6	2	23456
1LB4	4	1	34				S	2-3-6	2	236

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
1LC5	4	1	34				S	2-3-4-6	2	2346
1LC6	4	1	32				S	2-3-4-5-6	2	23456
1LD5 Pen.	4	1	36				S	2-3-4-6	2	236
Dio.	4	1	0						3	4
1LE3	4	1	35				S	2-6	2	26
1LH4 Tri.	4	1	35				S	2-4-6	2	26
Dio.	4	1	0						3	4
1LN5	4	1	38				S	2-3-4-6	2	2346
1N5	4	2	35				S	C-3-4	2	C34
1N6 Pen.	4	2	35				S	3-4-5-6	2	345
Dio.	4	2	0						3	6
1P5	4	2	36				S	C-3-4	2	C34
1Q5	4	2	38				S	3-4-5	2	345
1R4	4	1	0		H	8	S	2-4	3	4
1R5	4	5	34	1			S	2-3-4-6	2	2346
1S4	4	5	37	1-6			S	2-3-4	2	234
1S5 Pen.	4	1	30				S	3-4-5-6	2	456
Dio.	4	1	0						3	3
1SA6	4	2	35				S	3-4-6-8	2	3468
1SB6 Pen.	4	2	34				S	3-4-5-8	2	348
Dio.	4	2	0						3	5
1T4	4	5	35	1			S	2-3-6	2	236
1T5	4	2	38				S	3-4-5	2	345
1 V	9	1	45		H	4	S	2	1	2
2A3	6	1	46				S	2-3	1	23
2A4 T.1	6	2	46				S	3-5	1	3
T.2	6	2	46						1	5
2A5	6	1	41		H	6	S	2-3-4	1	234
2A6 Tri.	6	1	41		H	6	S	C-2-3-4	1	C2
Dio.1	6	1	0						3	3
Dio.2	6	1	0						3	4
2A7	6	1	41		H	7	S	C-2-3-4-5	1	C2345
2B6 In.	6	1	35		H	7	S	2-3-4-5	1	34
Out.	6	1	42						1	2345
2B7 Pen.	6	1	34		H	7	S	C-2-3-4-5	1	C23
Dio.1	6	1	0						3	4
Dio.2	6	1	0						3	5
2C21 Tri.1	9	1			H	7	S	C-3-4-5	1	45
Tri.2	9	1							1	C3
2C22	9	2	45		H	7	S	C(see note)	1	C(see note)
2D21	9	3	50	5	H	4	S	1-6-7	1	167
2E5	6	1	34		H	6	S	2-3-4	1	234
2G5	6	1	34		H	6	S	2-3-4	1	234
2S-4S P.1	6	1	0		H	5	S	2-3	3	2
P.2	6	1	0						3	3
2W3	6	2	36				S	4	1	4
2X2	6	1	32				S	0	1	C
2Y2	6	1	32				S	0	4	C
2Z2	6	1	30				S	2	1	2
3A4	6	1		25			S	3-4-6	2	346
3A5 Tri.1	6	1	37	4			S	2-3-5-6	2	56
Tri.2	6	1	37						2	23
3A8 Tri.	6	2	34	1			S	C-3-4-5-6-8	2	56
Pen.	6	2	37	1					2	C34
Dio.	6	2	0	1					3	8

NOTE: For Inter-Element Leakage connect lead to each top cap in succession. For Quality Test connect lead to both top caps in parallel.

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
3B5	6	2	36	8			S	3-4-5	2	345
3B7 Tri.1	6	1	37	4			S	2-3-6-7	2	23
Tri.2	6	1	37	4					2	67
3C5	6	2	36	8			S	3-4-5	2	345
3D6	6	1	39	7			S	2-3-6	2	236
3LF4	6	1		7			S	2-3-6	2	236
3Q4	6	1	38	25			S	3-4-6	2	346
3Q5	6	2	34	8			S	3-4-5	2	345
3S4	6	1	35	56			S	2-3-4	2	234
4A6 Tri.1	5	8	37	7			S	3-4-5-6	2	34
Tri.2	5	8	37	2					2	56
5R4 P.1	8	2	41				S	4-6	1	6
P.2	8	2	41						1	4
5T4 P.1	8	2	43				S	4-6	1	4
P.2	8	2	43						1	6
5U4 P.1	8	2	41				S	4-6	1	4
P.2	8	2	41						1	6
5V4 P.1	8	2	46				S	4-6	1	4
P.2	8	2	46						1	6
5W4 P.1	8	2	36				S	4-6	1	4
P.2	8	2	36						1	6
5X3 P.1	8	1	41				S	2-3	1	2
P.2	8	1	41						1	3
5X4 P.1	8	8	43				S	3-5	1	3
P.2	8	8	43						1	5
5Y3 P.1	8	2	36				S	4-6	1	4
P.2	8	2	36						1	6
5Y4 P.1	8	8	35				S	3-5	1	3
P.2	8	8	35						1	5
5Z3 P.1	8	1	41				S	2-3	1	2
P.2	8	1	41						1	3
5Z4 P.1	8	2	44				S	4-6	1	4
P.2	8	2	44						1	6
6A3	9	1	45				S	2-3	1	23
6A4	9	1	43				S	2-3-4	1	234
6A5	9	2	43	8			S	3-5	1	35
6A6 Tri.1	9	1	41		H	7	S	2-3-5-6	1	23
Tri.2	9	1	41						1	56
6A7	9	1	41		H	7	S	C-2-3-4-5	1	C2345
6A8	9	2	42		H	7	S	C-3-4-5-6	1	C3456
6AB5	9	1	24		H	6	S	2-3-4	1	234
6AB6	9	2	37		H	7	S	3-4-5	1	345
6AB7	9	2	45		H	7	S	3-4-6-8	1	3468
6AC5	9	2	42		H	7	S	3-5	1	35
6AC6	9	2	42		H	7	S	3-4-5	1	345
6AC7	9	2	47		H	7	S	3-4-6-8	1	3468
6AD5	9	2	39		H	7	S	3-5	1	35
6AD6 Tar.	9	2	0		H	7	S	3-4-5	4	5
Con.1	9	2	0						4	35
Con.2	9	2	0						4	45
6AD7 Tri.	9	2	7		H	7	S	1-3-4-5-6	1	16
Pen.	9	2	41						1	345
6AE5	9	2	44		H	7	S	3-5	1	35
6AE6	9	2	42		H	7	S	3-4-5	1	345
6AE7 Tri.1	9	2	42		H	7	S	3-4-6	1	34
Tri.2	9	2	42						1	36

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
6AF5	9	2	44		H	7	S	3-5	1	35
6AF6 Tar.	9	2	0		H	7	S	3-4-5	4	5
Con.1	9	2	0						4	35
Con.2	9	2	0						4	45
6AG5	9	3	38		H	4	S	1-5-6	1	156
6AG7	9	2	47		H	7	S	1-4-6-8	1	1468
6AH7 Tri.1	9	8	37		H	7	S	1-3-5-6	1	13
Tri.2	9	8	37						1	56
6AK5	9	3	44	7	H	4	S	1-5-6	1	156
6AK6	9	3	43		H	4	S	1-2-5-6	1	1256
6AL5 Dio.1	9	3	0		H	4	S	2-6-7	3	7
Dio.2	9	3	0						3	2
6AL6	9	2	45		H	7	S	C-4-5	1	C45
6B4	9	2	45				S	3-5	1	35
6B5	9	1	36		H	6	S	2-3-4	1	234
6B6 Tri.	9	2	42		H	7	S	C-3-4-5	1	C3
Dio.1	9	2	0						3	4
Dio.2	9	2	0						3	5
6B7 Pen.	9	1	34		H	7	S	C-2-3-4-5	1	C23
Dio.1	9	1	0						3	4
Dio.2	9	1	0						3	5
6B8 Pen.	9	2	32		H	7	S	C-3-4-5-6	1	C36
Dio.1	9	2	0						3	4
Dio.2	9	2	0						3	5
6C4	9	3	44	1	H	4	S	5-6	1	56
6C5	9	2	41		H	7	S	3-5	1	35
6C6	9	1	42		H	6	S	C-2-3-4	1	C234
6C7 Tri.	9	1	42		H	7	S	C 2-4-5	1	C2
Dio.1	9	1	0						3	4
Dio.2	9	1	0						3	5
6C8 Tri.1	9	2	36		H	7	S	C-3-5-6	1	C3
Tri.2	9	2	36						1	56
6D5	9	2	40		H	7	S	3-5	1	35
6D6	9	1	40		H	6	S	C-2-3-4	1	C234
6D7	9	1	43		H	7	S	C-2-3-4	1	C234
6D8	9	2	41		H	7	S	C-3-4-5-6	1	C3456
6E5	9	1	34		H	6	S	2-3-4	1	234
6E6 Tri.1	9	1	41		H	7	S	2-3-5-6	1	23
Tri.2	9	1	41						1	56
6E7	9	1	42		H	7	S	C-2-3-4	1	C234
6F5	9	2	43		H	7	S	C-4	1	C4
6F6	9	2	40		H	7	S	3-4-5	1	345
6F7 Tri.	9	1	8		H	7	S	C-2-3-4-5	1	45
Pen.	9	1	38						1	C23
6F8 Tri.1	9	2	43		H	7	S	C-3-5-6	1	C3
Tri.2	9	2	43						1	56
6G5	9	1	34		H	6	S	2-3-4	1	234
6G6	9	2	42		H	7	S	3-4-5	1	345
6H4	9	2	0		H	7	S	4	3	4
6H5	9	1	34		H	6	S	2-3-4	1	234
6H6 Dio.1	9	2	0		H	7	S	3-5	3	3
Dio.2	9	2	0						3	5
6J4	9	3		15	H	4	S	6-7	1	67
6J5	9	2	45		H	7	S	3-5	1	35
6J6 Tri.1	9	3	46		H	4	S	1-2-5-6	1	25
Tri.2	9	3	46						1	16
6J7	9	2	42		H	7	S	C-3-4-5	1	C345
6J8 Tri.	9	2	37		H	7	S	C-3-4-5-6	1	56
Hep.	9	2	45						1	C345

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
6K5	9	2	43		H	7	S	C-3	1	C3
6K6	9	2	41		H	7	S	3-4-5	1	345
6K7	9	2	40		H	7	S	C-3-4-5	1	C345
6K8 Tri.	9	2	45		H	7	S	C-3-4-5-6	1	56
Hex.	9	2	45						1	C345
6L5	9	2	44		H	7	S	3-5	1	35
6L6	9	2	45		H	7	S	3-4-5	1	345
6L7	9	2	44		H	7	S	C-3-4-5	1	C345
6N5	9	1	24		H	6	S	2-3-4	1	234
6N6	9	2	36		H	7	S	3-4-5	1	345
6N7 Tri.1	9	2	42		H	7	S	3-4-5-6	1	34
Tri.2	9	2	42						1	56
6P5	9	2	39		H	7	S	3-5	1	35
6P7 Tri.	9	2	8		H	3	S	C-4-5-6-7	1	67
Pen.	9	2	34						1	C45
6Q6 Tri.	9	2	40		H	7	S	C-3-5	1	C3
Dio.	9	2	0						3	5
6Q7 Tri.	9	2	42		H	7	S	C-3-4-5	1	C3
Dio.1	9	2	0						3	4
Dio.2	9	2	0						3	5
6R6	9	1	37		H	8	S	2-3-6	1	236
6R7 Tri.	9	2	38		H	7	S	C-3-4-5	1	C3
Dio.1	9	2	0						3	4
Dio.2	9	2	0						3	5
6S6	9	2	46		H	7	S	C-4-8	1	C48
6S7	9	2	41		H	7	S	C-3-4-5	1	C345
6SA7	9	2	45		H	7	S	1-3-4-5-8	1	13458
6SC7 Tri.1	9	8	41		H	7	S	2-3-4-5	1	23
Tri.2	9	8	41						1	45
6SD7	9	2	45		H	7	S	1-3-4-6-8	1	13468
6SE7	9	2	46		H	7	S	3-4-6-8	1	3468
6SF7	9	8	43		H	7	S	3-5	1	35
6SF7 Pen.	9	8	41		H	7	S	2-3-4-5	1	235
Dio.	9	8	0						3	5
6SG7	9	2	46		H	7	S	4-6-8	1	468
6SH7	9	2	46		H	7	S	4-6-8	1	468
6SJ7	9	2	43		H	7	S	3-4-6-8	1	3468
6SK7	9	2	42		H	7	S	3-4-6-8	1	3468
6SL7 Tri.1	9	8	42		H	7	S	1-2-4-5	1	45
Tri.2	9	8	42						1	12
6SN7 Tri.1	9	8	43		H	7	S	1-2-4-5	1	45
Tri.2	9	8	43						1	12
6SQ7 Tri.	9	8	41		H	7	S	2-4-5-6	1	26
Dio.1	9	8	0						3	4
Dio.2	9	8	0						3	5
6SR7 Tri.	9	8	40		H	7	S	2-4-5-6	1	26
Dio.1	9	8	0						3	4
Dio.2	9	8	0						3	5
6SS7	9	8	42		H	7	S	3-4-6-8	1	3468
6ST7 Tri.	9	8	41		H	7	S	2-4-5-6	1	26
Dio.1	9	8	0						3	5
Dio.2	9	8	0						3	4
6T5	9	1	34		H	6	S	2-3-4	1	234
6T7 Tri.	9	2	40		H	7	S	C-3-4-5	1	C3
Dio.1	9	2	0						3	4
Dio.2	9	2	0						3	5
6U5	9	1	35		H	6	S	2-3-4	1	234
6U6	9	2	46		H	7	S	3-4-5	1	345
6U7	9	2	42		H	7	S	C-3-4-5	1	C345

TUBE TYPE		FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
						CATH-HTR.		INTER-ELEMENT			
						CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
6V6		9	2	43		H	7	S	3-4-5	1	345
6V7	Tri.	9	2	41		H	7	S	C-3-4-5	1	C3
	Dio.1	9	2	0						3	4
	Dio.2	9	2	0						3	5
6W5	P.1	9	2	44		H	7	S	3-5	1	3
	P.2	9	2	44						1	5
6W6		9	2	43		H	7	S	3-4-5	1	345
6W7		9	2	43		H	7	S	C-3-4-5	1	C345
6X5	P.1	9	2	42		H	7	S	3-5	1	3
	P.2	9	2	42						1	5
6Y5	P.1	9	1	47		H	6	S	3-5	1	3
	P.2	9	1	47						1	5
6Y6		9	2	46		H	7	S	3-4-5	1	345
6Y7	Tri.1	9	2	40		H	7	S	3-4-5-6	1	34
	Tri.2	9	2	40						1	56
6Z3		9	1	46		H	4	S	2	1	2
6Z4	P.1	9	1	42		H	5	S	2-3	1	2
	P.2	9	1	42						1	3
6Z5	P.1	11	2	42	1	H	6	S	3-5	1	3
	P.2	11	2	42	1					1	5
6Z7	Tri.1	9	2	41		H	7	S	3-4-5-6	1	34
	Tri.2	9	2	41						1	56
6ZY5	P.1	9	2	40		H	7	S	3-5	1	3
	P.2	9	2	40						1	5
7A4		9	1	44		H	8	S	2-6	1	26
7A5		9	1	46		H	8	S	2-3-6	1	236
7A6	Dio.1	9	1	0		H	8	S	3-6	3	3
	Dio.2	9	1	0						3	6
7A7		9	1	44		H	8	S	2-3-4-6	1	2346
7A8		9	1	42		H	8	S	2-3-4-5-6	1	23456
7B4		9	1	44		H	8	S	2-6	1	26
7B5		9	1	42		H	8	S	2-3-6	1	236
7B6	Tri.	9	1	43		H	8	S	2-3-5-6	1	23
	Dio.1	9	1	0						3	5
	Dio.2	9	1	0						3	6
7B7		9	1	42		H	8	S	2-3-4-6	1	2346
7B8		9	1	44		H	8	S	2-3-4-5-6	1	23456
7C4		9	1	0		H	8	S	4	3	4
7C5		9	1	44		H	8	S	2-3-6	1	236
7C6	Tri.	9	1	41		H	8	S	2-3-5-6	1	23
	Dio.1	9	1	0						3	5
	Dio.2	9	1	0						3	6
7C7		9	1	45		H	8	S	2-3-4-6	1	2346
7E5		9	2	44	5-6-7	H	8	S	1-3	1	13
7E6	Tri.	9	1	43		H	8	S	2-3-5-6	1	23
	Dio.1	9	1	0						3	5
	Dio.2	9	1	0						3	6
7E7	Pen.	9	1	40		H	8	S	2-3-4-5-6	1	256
	Dio.1	9	1	0						3	3
	Dio.2	9	1	0						3	4
7F7	Tri.1	9	1	42		H	8	S	3-4-5-6	1	34
	Tri.2	9	1	42						1	56
7G7		9	1	47		H	8	S	2-3-4-6	1	2346
7H7		9	1	45		H	8	S	2-3-4-6	1	2346
7J7	Tri.	9	1	40		H	8	S	2-3-4-5-6	1	34
	Hex.	9	1	45						1	2456
7K7	Tri.	9	1	43		H	8	S	3-4-5-6	1	34
D1	Dio.1	9	1	0						3	6
	Dio.2	9	1	0						3	5
7L7		9	1	46		H	8	S	2-3-4-6	1	2346

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
7N7 Tri.1	9	1	44		H	8	S	3-4-5-6	1	34
Tri.2	9	1	44						1	56
7Q7	9	1	44		H	8	S	2-3-4-5-6	1	23456
7R7 Pen.	9	1	46		H	8	S	2-3-4-5-6	1	256
Dio.1	9	1	0						3	3
Dio.2	9	1	0						3	4
7S7 Hep.	9	1	46		H	8	S	2-3-4-5-6	1	2456
Tri.	9	1	40						1	34
7V7	9	1	46		H	8	S	2-3-4-6	1	2346
7W7	9	1	42	7	H	8	S	2-3-5-6	1	2356
7Y4 P.1	9	1	43		H	8	S	3-6	1	3
P.2	9	1	43						1	6
7Z4 P.1	9	1	37		H	8	S	3-6	1	6
P.2	9	1	37						1	3
10	10	1	38				S	2-3	1	23
12 A	8	1	42				S	2-3	1	23
12A5	11	1	41	6	H	7	S	2-3-4	1	234
12A6	11	2	41		H	7	S	3-4-5	1	345
12A7 Rec.	11	1	46		H	7	S	C-2-3-5	1	5
Pen.	11	1	40						1	C23
12A8	11	2	43		H	7	S	C-3-4-5-6	1	C3456
12AH7 Tri.1	11	8	37		H	7	S	1-3-5-6	1	13
Tri.2	11	8	37						1	56
12B7	11	1	43		H	8	S	2-3-4-6	1	2346
12B8 Tri.	11	2	45		H	7	S	C-3-4-5-8	1	58
Pen.	11	2	43						1	C34
12C8 Pen.	11	2	36		H	7	S	C-3-4-5-6	1	C36
Dio.1	11	2	0						3	4
Dio.2	11	2	0						3	5
12E5	11	2	40		H	7	S	3-5	1	35
12F5	11	2	43		H	7	S	C-4	1	C4
12H6 Dio.1	11	2	0		H	7	S	3-5	3	5
Dio.2	11	2	0						3	3
12J5	11	2	44		H	7	S	3-5	1	35
12J7	11	2	42		H	7	S	C-3-4-5	1	C345
12K7	11	2	41		H	7	S	C-3-4-5	1	C345
12K8 Tri.	11	2	46		H	7	S	C-3-4-5-6	1	56
Hex.	11	2	46						1	C345
12L8 Pen.1	11	7	43		H	6	S	1-3-4-5-8	1	158
Pen.2	11	7	43							345
12Q7 Tri.	11	2	43		H	7	S	C-3-4-5	1	C3
Dio.1	11	2	0						3	4
Dio.2	11	2	0						3	5
12SA7	11	2	45		H	7	S	1-3-4-5-8	1	13458
12SC7 Tri.1	11	8	41		H	7	S	2-3-4-5	1	23
Tri.2	11	8	41						1	45
12SF5	11	8	44		H	7	S	3-5	1	35
12SF7 Pen.	11	8	41		H	7	S	2-4-5-6	1	246
Dio.	11	8	0						3	5
12SG7	11	2	46		H	7	S	4-6-8	1	468
12SH7	11	2	46		H	7	S	4-6-8	1	468
12SJ7	11	2	45		H	7	S	3-4-6-8	1	3468
12SK7	11	2	42		H	7	S	3-4-6-8	1	3468
12SL7 Tri.1	11	8	42		H	7	S	1-2-4-5	1	45
Tri.2	11	8	42						1	12
12SN7 Tri.1	11	8	44		H	7	S	1-2-4-5	1	45
Tri.2	11	8	44						1	12
12SQ7 Tri.	11	8	43		H	7	S	2-4-5-6	1	26
Dio.1	11	8	0						3	4
Dio.2	11	8	0						3	5
12SR7 Tri.	11	8	41		H	7	S	2-4-5-6	1	26
Dio.1	11	8	0						3	4
Dio.2	11	8	0						3	5

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
12Z3	11	1	46		H	4	S	2	1	2
12Z5 P.1	11	2	42	1	H	6	S	3-5	1	3
P.2	11	2	42	1					1	5
14	11	1	40		H	5	S	C-2-3	1	C23
14A4	11	1	44		H	8	S	2-6	1	26
14A5	11	1	42		H	8	S	2-3-6	1	236
14A7	11	1	44		H	8	S	2-3-4-6	1	2346
14B6 Tri.	11	1	44		H	8	S	2-3-5-6	1	23
Dio.1	11	1	0						3	5
Dio.2	11	1	0						3	6
14B8	11	1	43		H	8	S	2-3-4-5-6	1	23456
14C5	11	1	44		H	8	S	2-3-6	1	236
14C7	11	1	44		H	8	S	2-3-4-6	1	2346
14E6 Tri.1	11	1	41		H	8	S	2-3-5-6	1	23
Dio.1	11	1	0						3	5
Dio.2	11	1	0						3	6
14E7 Pen.	11	1	40		H	8	S	2-3-4-5-6	1	256
Dio.1	11	1	0						3	4
Dio.2	11	1	0						3	3
14F7 Tri.1	11	1	43		H	8	S	3-4-5-6	1	34
Tri.2	11	1	43						1	56
14H7	11	1	46		H	8	S	2-3-4-6	1	2346
14J7 Tri.	11	1	39		H	8	S	2-3-4-5-6	1	34
Hex.	11	1	45						1	2456
14N7 Tri.1	11	1	44		H	8	S	3-4-5-6	1	34
Tri.2	11	1	44						1	56
14Q7	11	1	45		H	8	S	2-3-4-5-6	1	23456
14R7 Pen.	11	1	46		H	8	S	2-3-4-5-6	1	256
Dio.1	11	1	0						3	3
Dio.2	11	1	0						3	4
14S7 Tri.	11	1	41		H	8	S	2-3-4-5-6	1	34
Hep.	11	1	46						1	2456
14W7	11	1	42	4	H	8	S	2-3-5-6	1	2356
14Y4 P.1	11	1	43		H	8	S	3-6	1	3
P.2	11	1	43						1	6
14Z3	11	1	46		H	4	S	2	1	2
15	5	1	28		H	5	S	C-2-3	2	C23
17	11	1	37		H	5	S	2-3	1	23
18	11	1	42		H	6	S	2-3-4	1	234
19 Tri.1	5	1	34					2-3-4-5	2	23
Tri.2	5	1	34						2	45
20	7	1	27				S	2-3	2	23
22	7	1	22				S	C-2-3	2	C23
24A	6	1	40		H	5	S	C-2-3	1	C23
25 Tri.	5	1	30				S	2-3-4-5	2	25
Dio.1	5	1	0						3	3
Dio.2	5	1	0						3	4
25A6	13	2	43		H	7	S	3-4-5	1	345
25A7 Rec.	13	2	44		H	7	S	3-4-5-6	1	6
Pen.	13	2	42						1	345
25AC5	13	2	43		H	7	S	3-5	1	35
25B5	13	1	41		H	6	S	2-3-4	1	234
25B6	13	2	45		H	7	S	3-4-5	1	345
25B8 Tri.	13	2	44		H	7	S	C-3-4-5-8	1	58
Pen.	13	2	44						1	C34
25C6	13	2	45		H	7	S	3-4-5	1	345
25D8 Tri.	13	2	42		H	7	S	C-3-4-5-6-8	1	56
Pen.	13	2	44						1	C34
Dio.	13	2	0						3	8

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
25L6	13	2	46		H	7	S	3-4-5	1	345
25N6	13	2	41		H	7	S	3-4-5-	1	345
25S-1B5 Tri.	5	1	30				S	2-3-4-5	2	25
Dio.1	5	1	0						3	3
Dio.2	5	1	0						3	4
25X6 P.1	13	2	43		H	7	S	3-5	1	3
P.2	13	2	43						1	5
25Y5 P.1	13	1	45		H	6	S	2-5	1	2
P.2	13	1	45						1	5
25Z3	13	1	46		H	4	S	2	1	2
25Z4	13	2	47		H	7	S	5	1	5
25Z5 P.1	13	1	46		H	6	S	2-5	1	2
P.2	13	1	46						1	5
25Z6 P.1	13	2	46		H	7	S	3-5	1	3
P.2	13	2	46						1	5
26	4	1	36				S	2-3	1	23
27	6	1	37		H	5	S	2-3	1	23
28D7 P.1	13	1	41		H	8	S	2-3-4-5-7	2	357
P.2	13	1	41						2	234
29 Tri.1	6	1	35		H	6	S	2-3-4	1	23
Tri.2	6	1	35						1	24
30	5	1	32				S	2-3	2	23
30S	5	1	32				S	C-3	2	C3
31	5	1	33				S	2-3	2	23
32	5	1	32				S	C-2-3	2	C23
32L7 Rec.	14	2	46		H	7	S	3-4-5-6	1	6
Tet.	14	2	45						1	345
33	5	1	35				S	2-3-4	2	234
34	5	1	31				S	C-2-3	2	C23
35-51	6	1	40		H	5	S	C-2-3	1	C23
35A5	14	1	46		H	8	S	2-3-6	1	236
35L6	14	2	47		H	7	S	3-4-5	1	345
35Y4	13	1	45	4	H	8	S	2	1	2
35Z3	14	1	47		H	8	S	2	1	2
35Z4	14	2	46		H	7	S	5	1	5
35Z5	14	2	42	3	H	7	S	5	1	5
35Z6 P.1	14	2	47		H	7	S	3-5	1	3
P.2	14	2	47						1	5
36	9	1	41		H	5	S	C-2-3	1	C23
37	9	1	39		H	5	S	2-3	1	23
38	9	1	40		H	5	S	C-2-3	1	C23
39-44	9	1	37		H	5	S	C-2-3	1	C23
40	8	1	38				S	2-3	1	23
40Z5	15	2	43	3	H	7	S	5	1	5
41	9	1	43		H	6	S	2-3-4	1	234
42	9	1	43		H	6	S	2-3-4	1	234
43	13	1	46		H	6	S	2-3-4	1	234
44-39	9	1	37		H	5	S	C-2-3	1	C23
45	6	1	41				S	2-3	1	23
45Z3	15	1	45	2	H	7	S	6	1	6
45Z5	15	2	43	3	H	7	S	5	1	5
46	6	1	42				S	2-3-4	1	234
47	6	1	42				S	2-3-4	1	234
48	13	1	45		H	6	S	2-3-4	1	234
49	5	1	34				S	2-3-4	2	234
50	10	1	40				S	2-3	1	23
50A5	16	1	47		H	8	S	2-3-6	1	236
50C6	16	2	47		H	7	S	3-4-5	1	345
50L6	16	2	46		H	7	S	3-4-5	1	345

TUBE TYPE		FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
						CATH-HTR.		INTER-ELEMENT			
						CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
50Y6	P.1	16	2	46		H	7	S	3-5	1	3
	P.2	16	2	46						1	5
50Z7	P.1	16	2	46	6	H	7	S	3-5	1	3
	P.2	16	2	46	6					1	5
51-35		6	1	40		H	5	S	C-2-3	1	C23
52		9	1	43				S	2-3-4	1	234
53	Tri.1	6	1	42		H	7	S	2-3-5-6	1	23
	Tri.2	6	1	42						1	56
55	Tri.	6	1	34		H	6	S	C-2-3-4	1	C2
	Dio.1	6	1	0						3	3
	Dio.2	6	1	0						3	4
56		6	1	40		H	5	S	2-3	1	23
57		6	1	42		H	6	S	C-2-3-4	1	C234
58		6	1	41		H	6	S	C-2-3-4	1	C234
59		6	1	42		H	7	S	2-3-4-5	1	2345
70A7	Tet.	18	2	44	6	H	7	S	3-4-5	1	345
	Rec.	18	2	46	6					1	19
70L7	Rec.	18	2	46		H	7	S	3-4-5-8	1	8
	Tet.	18	2	45						1	345
71A		8	1	41				S	2-3	1	23
75	Tri.	9	1	41		H	6	S	C-2-3-4	1	C2
	Dio.1	9	1	0						3	3
	Dio.2	9	1	0						3	4
76		9	1	39		H	5	S	2-3	1	23
77		9	1	41		H	6	S	C-2-3-4	1	C234
78		9	1	41		H	6	S	C-2-3-4	1	C234
79	Tri.1	9	1	41		H	6	S	C-2-3-5	1	C3
	Tri.2	9	1	41						1	25
80	P.1	8	1	37				S	2-3	1	2
	P.2	8	1	37						1	3
81		10	1	33				S	2	1	2
82	P.1	6	1	47				S	2-3	1	2
	P.2	6	1	47						1	3
83	P.1	8	1	47				S	2-3	1	2
	P.2	8	1	47						1	3
83V	P.1	8	1	45				S	2-3	1	2
	P.2	8	1	45						1	3
84	P.1	9	1	42		H	5	S	2-3	1	2
	P.2	9	1	42						1	3
85	Tri.	9	1	34		H	6	S	C-2-3-4	1	C2
	Dio.1	9	1	0						3	3
	Dio.2	9	1	0						3	4
99		7	1	0				S	2-3	2	23
117L7	Rec.	22	2	45		H	7	S	3-4-5-6	1	6
	Tet.	22	2	46						1	345
117M7	Rec.	22	2	46		H	7	S	3-4-5-6	1	6
	Tet.	22	2	46						1	345
117N7	Tet.	22	2	46		H	7	S	3-4-5	1	345
	Rec.	22	2	46						1	89
117P7	Tet.	22	2	45		H	7	S	3-4-5	1	345
	Rec.	22	2	47						1	89
117Z4		22	2	46		H	7	S	5	1	5
117Z6	P.1	22	2	46	1	H	7	S	3-5	1	3
	P.2	22	2	46	1					1	5
182-482		8	1	41				S	2-3	1	23
183-483		8	1	41				S	2-3	1	23
257		7	1	33				S	2-3-4	2	234
484-485		7	1	41		H	5	S	2-3	1	23
585		10	1	39				S	2-3	1	23
586		10	1	39				S	2-3	1	23

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
840	5	1	33				S	C-2-3-4	2	C234
864	4	1	30				S	2-3	2	23
884	9	2	45		H	7	S	3-5	1	35
885	6	1	45		H	5	S	2-3	1	23
950	5	1	32				S	2-3-4	2	234
951-1B4	5	1	34				S	C-2-3	2	C23
986 P.1	8	1	47				S	2-3	1	2
P.2	8	1	47						1	3
1201	9	2	44	567	H	8	S	1-3	1	13
1203A	9	1	0		H	8	S	4	3	4
1221	9	1	42		H	6	S	C-2-3-4	1	C234
1223	9	2	42		H	7	S	C-3-4-5	1	C345
1291 Tri.1	6	1	37	4			S	2-3-6-7	2	23
Tri.2	6	1	37	4					2	67
1294	4	1	0		H	8	S	2-4	3	4
1603	9	1			H	6	S	C-2-3-4	1	C234
1609	3	1	32				S	2-3-4	2	234
1612	9	2	45		H	7	S	C-3-4-5	1	C345
1620	9	2	41		H	7	S	C-3-4-5	1	C345
1621	9	2	41		H	7	S	3-4-5	1	345
1622	9	2	45		H	7	S	3-4-5	1	345
1629	11	2	36		H	7	S	3-4-5	1	345
1631	11	2			H	7	S	3-4-5	1	345
1632	11	2			H	7	S	3-4-5	1	345
1633 Tri.1	13	8	43		H	7	S	1-2-4-5	1	45
Tri.2	13	8	43						1	12
1634 Tri.1	11	8	41		H	7	S	2-3-4-5	1	45
Tri.2	11	8	41						1	23
1635 Tri.1	9	2	42		H	7	S	3-4-5-6	1	56.
Tri.2	9	2	42						1	34
1642 Tri.1	9	1			H	7	S	C-3-4-5	1	45
Tri.2	9	1							1	C3
1644 Pen.1	11	7	43		H	6	S	1-3-4-5-8	1	158
Pen.2	11	7	43						1	345
1851	9	2	47		H	7	S	C-3-4-5	1	C345
1852	9	2	47		H	7	S	3-4-6-8	1	3468
1853	9	2	45		H	7	S	3-4-6-8	1	3468
2050	9	2	47		H	7	S	3-5-6	1	356
2051	9	2	47		H	7	S	3-5-6	1	356
7000	9	2	42		H	7	S	C-3-4-5	1	C345
7700	9	1	42		H	5	S	C-2-3-4	1	C234
7193	9	2			H	7	S	C(see note)	1	C(see note)
9001	9	3	42		H	4	S	1-5-6	1	156
9002	9	3	42	1	H	4	S	5-6	1	56
9003	9	3	42		H	4	S	1-5-6	1	156
9006	9	3	0	2-5	H	4	S	1	3	1
AD	9	1	47		H	4	S	2	1	2
AF P.1	6	1	47				S	2-3	1	2
P.2	6	1	47						1	3
D½	10	1	32				S	2	1	2
D1 P.1	8	1	35				S	2-3	1	2
P.2	8	1	35						1	3
DE1	6	1	37		H	5	S	2-3	1	23

NOTE: For Inter-Element Leakage connect lead to each top cap in succession.
For Quality Test connect lead to both top caps in parallel.

TUBE TYPE		FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
						CATH-HTR.		INTER-ELEMENT			
						CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
G2	P.1	6	1	0		H	5	S	2-3	3	2
	P.2	6	1	0						3	3
G4	P.1	6	1	0		H	5	S	2-3	3	2
	P.2	6	1	0						3	3
G84		6	1	30				S	2	1	2
H		8	1	39				S	2-3	1	23
HY113		4	1	0				S	2-3	3	23
HY115		4	1	5				S	2-3-4	3	234
HY123		4	1	0				S	2-3	3	23
HY125		4	1	5				S	2-3-4	3	234
HY145		4	1	5				S	2-3-4	3	234
HY155		4	1	5				S	2-3-4	3	234
K24		6	1	40		H	5	S	C-2-3	1	C23
KR1		9	1	46		H	4	S	2	1	2
KR2		8	1	46		H	4	S	2	1	2
KR5		9	1	42				S	2-3-4	1	234
KR25		6	1	41		H	6	S	2-3-4	1	234
KR28	P.1	9	1	42		H	5	S	2-3	1	2
	P.2	9	1	42						1	3
KR98	P.1	9	1	42		H	5	S	2-3	1	2
	P.2	9	1	42						1	3
LA		9	1	42				S	2-3-4	1	234
P861	P.1	9	1	42		H	5	S	2-3	1	2
	P.2	9	1	42						1	3
PZ		6	1	42				S	2-3-4	1	234
PZH		6	1	42		H	6	S	2-3-4	1	234
XXB	Tri.1	7	1		7			S	3-4-5-6	2	34
	Tri.2	7	1		7					2	56
XXD	Tri.1	11	1	43		H	8	S	3-4-5-6	1	34
	Tri.2	11	1	43						1	56
XXFM	Tri.1	9	1	41		H	8	S	2-3-5-6	1	23
	Dio.1	9	1	0						3	5
	Dio.2	9	1	0						3	6
XXL		9	1	45		H	8	S	2-6	1	26

ACORN TUBES

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG. DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR.		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP (Together)
6F4	9	1	47	45	H	6	S	2-3	1	23
954	9	1			H	6	S	C-3-4-8	1	C348
955	9	1	35		H	6	S	3-4	1	34
956	9	1	38		H	6	S	C-3-4-8	1	C348
957	3	1	26				S	3-4	2	34
958	3	1	28				S	3-4	2	34
959	3	1	32				S	C-3-4-8	2	C348
9004	9	1	15		H	6	S	3	3	3
9005	7	1			H	6	S	4	3	4

SUPPLEMENT

TUBE TYPE	FIL. SEL.	FIL. RET.	TUBE SEL.	TOG DOWN	LEAKAGE OR SHORT TEST				QUALITY TEST	
					CATH-HTR		INTER-ELEMENT			
					CIR. SEL.	TOG. UP	CIR. SEL.	TOGGLES UP (Separately)	CIR. SEL.	TOGGLES UP ((Together)
0A2	22	2	33	147			S	5	1	5
0A3	15	2	37				S	5	1	5
0B3	18	2	40				S	5	1	5
0C3	18	2	35				S	5	1	5
0D3	22	2	38		H		S	5	1	5
0Y4	0	1	45				S	5	4	5
1U4	4	1	30	5			S	2-3-6	2	236
2E26	9	2	44		H	7	S	C-3-5	1	C35
2V3	6	2	16				S	C	4	C
6AQ5	9	3	42	7	H	4	S	1-5-6	1	156
6AQ6 Amp.	9	3	40		H	4	S	1-5-6-7	1	17
Dio.1	9	3	0						3	5
Dio.2	9	3	0						3	6
6AS7 Tri.1	9	7	45		H	8	S	1-2-4-5	1	12
Tri.2	9	7	46						1	45
6AT6 Tri.	9	3	41		H	4	S	1-5-6-7	1	17
Dio.1	9	3	0						3	5
Dio.2	9	3	0						3	6
6BA6	9	3	45		H	4	S	1-2-5-6	1	1256
6BE6 Osc.	9	3	45		H	4	S	1-5-6-7	1	16
Mix.	9	3	0						1	567
6N4	9	3	42	7	H	4	S	1-5	1	15
6S8 Tri.	9	7	41		H	8	S	C-1-3-4-6	1	C6
Dio.1	9	7	0						3	3
Dio.2	9	7	0						3	4
Dio.3	9	7	0						3	1
6SB7 Osc.	9	2	46		H	7	S	1-3-4-5-8	1	45
Mix.	9	2	0						1	138
6SZ7 Tri.	9	7	40		H	8	S	2-4-5-6	1	26
Dio.1	9	7	0						3	5
Dio.2	9	7	0						3	4
6X4 P.2	9	3	42	25	H	4	S	1-6	1	1
P.1	9	3	42						1	6
7AG7	9	1	46		H	8	S	2-3-4-6	1	2346
7T7	9	1	45		H	8	S	2-3-4-6	1	2346
7X7 Tri.	9	1	41		H	8	S	2-3-5-6	1	23
Dio.1	9	1	0						3	5
Dio.2	9	1	0						3	6
12AT6 Tri.	11	3	42		H	4	S	1-5-6-7	1	17
Dio.1	11	3	0						3	6
Dio.2	11	3	0						3	5
12BA6	11	3	46		H	4	S	1-2-5-6	1	1256
12BE6	11	3	45		H	4	S	1-5-6-7	1	1567
26A7 Pen.1	13	6	46		H	7	S	1-3-4-5	1	15
Pen.2	13	6	46						1	345
35W4	14	3	46	6	H	4	S	5	1	5
50B5	16	3	46	7	H	4	S	1-5-6	1	156
89	9	1	39		H	6	S	C-2-3-4	1	C234
117Z3	22	3	44	1	H	4	S	5	1	5
1231	9	1	45		H	8	S	2-3-4-6	1	2346
1299	6	1	41	7			S	2-3-6	2	236
1602	10	1	38				S	2-3	1	23
1654	4	1	31				S	C	4	C
8016	4	2	6				S	C	1	C
VR 75	15	2	37				S	5	1	5
VR 90	18	2	40				S	5	1	5
VR 105	18	2	35				S	5	1	5
VR 150	22	2	38		H		S	5	1	5

SEP - 6 1946